PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 17 November 2000 (17.11.00)	
International application No. PCT/GB00/01050	**Applicant's or agent's file reference** RSN/P10518PC
International filing date (day/month/year) 27 March 2000 (27.03.00)	**Priority date** (day/month/year) 26 March 1999 (26.03.99)
Applicant COOPER, Jonathan, Mark et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

13 October 2000 (13.10.00)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer Zakaria EL KHODARY
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

REC'D 14 JUN 2001
WIPO PCT

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70) 13

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
RSN/P10518PC		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB00/01050	27/03/2000	26/03/1999
International Patent Classification (IPC) or national classification and IPC G01N21/64		
Applicant THE UNIVERSITY COURT OF THE UNIVERSITY OF GLASGOW		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 14 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☒ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☒ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
13/10/2000	12.06.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Filipas, A Telephone No. +49 89 2399 2255

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/01050

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1-16 as originally filed

Claims, No.:

1-38 as originally filed

Drawings, sheets:

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

   ☐ the entire international application.

   ☒ claims Nos. 31-35.

because:

   ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

   ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 31-35 are so unclear that no meaningful opinion could be formed (*specify*):
   see separate sheet

   ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

   ☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

   ☐ the written form has not been furnished or does not comply with the standard.

   ☐ the computer readable form has not been furnished or does not comply with the standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

   ☐ restricted the claims.

☐ paid additional fees.

☐ paid additional fees under protest.

☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

☐ complied with.

☒ not complied with for the following reasons:
see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

☒ all parts.

☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-27,30,36-38
	No:	Claims	28,29
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-27,30,36-38
Industrial applicability (IA)	Yes:	Claims	1-30,36-38
	No:	Claims	

2. Citations and explanations
see separate sheet

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Reference is made to the following documents, previously cited in the International Search Report:

D1: GB-A-2 315 131 (CAMBRIDGE IMAGING) 12 January 1998
D2: DE-A-97 25 050 (FRAUNHOFER-GESELLSCHAFT) 17 December 1998
D3: US-A-5 053 619 (ARIMOTO) 1 October 1991
D4: WO-A-97 39151 (AFFYMETRIX) 23 October 1997
D5: BURKHARDT M. et al.: 'Illuminator design for printing of regular contact patterns' MICROELECTRONIC ENGINEERING., vol. 41-42, 1998, pages 91-95, XP004111724 ELSEVIER PUBLISHERS BV., AMSTERDAM., NL ISSN: 0167-9317
D6: DE-U-298 10 554 (KRAUSER) 29 October 1998
D7: WO-A-00 31518 (CAMBRIDGE RESEARCH AND INSTRUMENTATION) 2 June 2000
D8: EP-A-0 947 249 (CORNING) 6 October 1999

Re Item III
Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The independent claim 31 (with dependent claims 32-35) is rendered unclear (Article 6 PCT) by the attempt to define the respective subject-matter by reference to features relating to the use of the claimed apparatus, i.e. by specifying the relationship of the claimed apparatus to a second entity which is apparently not part thereof ("...the location of each diffractive optical element being adjustable with respect to said sample presentation means...") - in this respect, see the PCT International Preliminary Examination Guidelines, C III-4.8a.

Re Item IV
Lack of unity of invention

1. The application is not unitary (Rule 13.1 PCT) and relates to two separate (groups of) inventions which constitute the subject-matter of the following groups of claims:

i) claims 1-27 and 31-38, for apparatus and methods involving the use of means for diffracting an excitation radiation into a pattern; and

ii) claims 28-30, for a sample holder having multiple sample-receiving areas and corresponding focussing optical elements.

2. The two separate groups of inventions cited above are not linked so as to form a single general inventive concept for the reasons listed below.

The special technical feature (in the sense of Rule 13.2 PCT) of the first group of inventions, as compared to the prior art as disclosed by D1 or by D2, is the use of means for diffracting an excitation radiation into a pattern. The problem solved by said first group of inventions is to provide an alternative to the solution disclosed by D1 for the accurate assaying of multiple samples.

The special technical feature of the second invention, as compared to the same prior art, is the provision of the sample holder with optical elements for focussing the radiation emitted by each excited sample. The problem solved by the second invention is to provide a sample holder enabling an increased sensitivity of measurement.

Said separate (groups of) inventions provide therefore solutions to different technical problems, which are not linearly linked, and the solutions to said problems do not have any common or corresponding special technical features.

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

i) claims 1-27 and 36-38

1. Documents D1 and D2, considered as relevant prior art with respect to the subject-matter of claim 1 of the present application, disclose each (see in particular page 18, second paragraph, of D1 and column 4, line 11 - column 5, line 31, of D2):

an apparatus for assaying samples, the apparatus comprising excitation means for emitting radiation of a first excitation wavelength, means for forming the excitation radiation into a radiation pattern, sample presentation means for presenting samples

to be assayed, wherein the excitation radiation pattern coincides in location with the sample presentation means, and detection means for detecting radiation of at least one emitted wavelength emitted by the samples, whereby, in use, the excitation radiation pattern creates emitted radiation of at least a second wavelength from the samples which is detected by said detection means.

The subject-matter of claim 1 (insofar as it can be understood in view of the clarity objections under section VIII) differs from each of the devices disclosed in documents D1 and D2 in that the means for forming the excitation radiation into a radiation pattern are diffracting means (so that the excitation radiation pattern is a diffraction pattern), whereas D1 discloses the use of optical fibres and D2 the use of lenses.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may therefore be regarded as providing an alternative to the apparatus of the general type disclosed in each of the document D1 and D2, which would enable the accurate assaying of multiple samples.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT), since it is generally known to the person skilled in the art that optical fibres, lenses and diffracting means are equivalent means for creating a radiation pattern and can be interchanged with one another where circumstances make it desirable.

2. In the independent claim 20 (see also the statement under paragraph 1 of section VIII below), a slight constructional change in the apparatus of claim 1 is defined which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claim 20, although being novel, also lacks an inventive step.

3. Claims 2-19 and 21 are dependent on claims 1 and 20, respectively, and as such also meet the requirements of the PCT with respect to novelty. However, dependent claims 2-19 and 21 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, the reasons being that said dependent claims seem to relate to mere design modifications, consequential features of the

basic apparatus of claims 1 and 20, respectively, or conventional features (see e.g. documents D1-D3), and thus do not add anything inventive to the independent apparatus claims 1 and 20.

4. Each of D1 and D2 also discloses:

a method of assaying multiple samples simultaneously, the method comprising the steps of:
providing at least one source of excitation radiation of at least a first wavelength;
splitting the excitation radiation into multiple radiation beams, the spatial pattern of the beams corresponding to a spatial arrangement of multiple samples;
exciting the samples by the excitation radiation, and detecting radiation of at least a first emitted wavelength emitted by the samples.

The subject-matter of claim 22 differs from the methods disclosed in documents D1 and D2 in that the splitting of the excitation radiation into multiple radiation beams is performed by diffraction, whereas D1 discloses the use of optical fibres and D2 the use of lenses.

The subject-matter of claim 22 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may therefore be regarded as providing an alternative to the method of the general type disclosed in each of the documents D1 and D2, which would enable the accurate assaying of multiple samples.

The solution proposed in claim 22 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT), since it is generally known to the person skilled in the art that diffraction, the use optical fibres of and the use of lenses are equivalent ways of splitting a radiation beam and can be interchanged with one another where circumstances make it desirable.

5. Claims 23-27 are dependent on claim 22, and as such also meet the requirements of the PCT with respect to novelty. However, dependent claims 23-27 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, the reasons being that said dependent claims seem to relate to mere normal

modifications, consequential features of the basic method of claim 22, or conventional features (see e.g. documents D1, D2), and thus do not add anything inventive to the independent method claim 22.

6. Document D4, considered as the closest prior art with respect to the subject-matter of claim 36 of the present application, discloses (see in particular page 1, line 22 - page 2, line 7, page 16, line 23 - page 17, line 7 and page 54, lines 3-33):

a method of manufacturing a substrate bearing an array of bound molecules, the method comprising the steps of:
providing at least one source of excitation radiation;
exciting a substrate bearing unbound molecules with the excitation radiation, so as to activate a photochemical reaction between the unbound molecules and the substrate to bind the molecules to the substrate on those parts of the substrate excited by the excitation radiation; and
removing any remaining unbound molecules from the substrate.

The subject-matter of claim 36 differs from the method disclosed in document D4 in that it comprises the step of diffracting the excitation radiation into a pattern corresponding to a desired arrangement of bound molecules.

The subject-matter of claim 36 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may therefore be regarded as providing a method of the general type disclosed in document D4 which would enable an accurate and reliable exposure of selected portions of the substrate to the excitation radiation.

The solution proposed in claim 36 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT), since the feature of diffracting the excitation radiation into a pattern corresponding to a desired arrangement has already been employed for microlithography, see document D5, page 91, right-hand column, and it would be obvious to the person skilled in the art, namely when the same result is to be achieved, to apply this feature with corresponding effect to a method according to document D4, thereby arriving at a method according to claim 36.

7. Claims 37 and 38 are dependent on claim 36, and as such also meet the requirements of the PCT with respect to novelty. However, dependent claims 37 and 38 do not contain any features which, in combination with the features of claim 36 to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being that their additional features are also disclosed by document D4.

***

ii) claims 28-30

8. The subject-matter of the independent claim 28 is anticipated by documents D2 and D6, which disclose each

a sample holder suitable for use with apparatus for assaying samples having excitation means for emitting excitation radiation and detection means for detecting radiation emitted in use by samples, the sample holder having multiple sample-receiving areas and multiple optical elements arranged in locations corresponding to the sample-receiving areas, each of which, in use, collects and focuses radiation emitted by each sample for detection by said detection means.

Hence, claim 28 appears not to be novel (Article 33(2) PCT) in view of the disclosure of each of the documents D2 and D6.

9. Dependent claim 29 does not contain any features which, in combination with the features of claim 28 to which it refers, meet the requirements of the PCT in respect of novelty, the reasons being that the additional feature of claim 29 is also disclosed by each of the documents D2 and D6, which therefore also anticipate the subject-matter of said claim 29.

10. Although the subject-matter of claim 30 is not disclosed as such in the available prior art, and is therefore novel (Article 33(2) PCT), dependent claim 30 does not contain any features which, in combination with the features of claim 28 to which it refers, meet the requirements of Article 33(3) PCT in respect of inventive step, the reasons being as follows:

D2 also discloses a lens-based optical system (10, 8, 9) associated with the sample holder for splitting the excitation radiation in order to form a radiation pattern corresponding to the multiple sample receiving areas, and since it is generally known to the person skilled in the art that lenses and diffracting means are equivalent

means for creating a radiation pattern and can be interchanged with one another where circumstances make it desirable, the subject-matter of claim 30 cannot be considered as involving an inventive step.

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11. Claims 1-30 and 36-38 appear to satisfy the criterion of industrial applicability (Article 33(4) PCT), since the claimed (groups of) inventions can be used for assaying samples (e.g. for high throughput screening of biomolecules).

Re Item VI
Certain documents cited

With regard to the possible entering the regional phase by applying for an European Patent, attention is drawn to the following.
PCT application US99/25258 (D7) was filed on 3 November 1999, claiming the priority date of 24 November 1998 from the US application 60/109618, and was published on 2 June 2000 with the International Publication Number WO 00/31518. The application EP 0 947 249 (D8) was filed on 18 March 1998 and was published on 6 October 2000. The content of each of documents D7 and D8 as filed could therefore be considered as comprised in the state of the art relevant to the question of novelty, pursuant to Article 54(3) and (4) EPC, insofar as the same Contracting States are designated.

The apparatus and method as disclosed by D7 (see in particular page 6, lines 7-12, page 16, line 31 - page 17, line 22, and page 20, line 24 - page 21, line 5) appear to fall within the scope of the independent apparatus and method claims 1 and 22, respectively, of the present application. The additional features of the dependent claims 2-4, 17, 18 and 23 are also disclosed by document D7.

The apparatus disclosed by D8 (see in particular column 1, lines 5-7, column 2, lines 33-38 and column 3, line 35 - column 4, line 9) appears to fall within the scope of the independent apparatus claim 28 of the present application. The additional feature of the dependent claim 29 is also disclosed by document D8.

Re Item VII

Certain defects in the international application

1. The independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, with those features known in combination from the prior art being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

2. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

3. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1, D2, D4 and D6 is not mentioned in the description, nor are these documents identified therein.

   Moreover, a document reflecting the prior art described on page 1, line 7 - page 2, line 13, is not identified in the description (Rule 5.1(a)(ii) PCT).

Re Item VIII
Certain observations on the international application

1. The various definitions of the apparatus aspect of the first group of inventions, as given in the independent apparatus claims 1, 20 (which actually includes all the features of claim 1) and 31, are such that the claims as a whole are not clear and concise, contrary to the provisions of Article 6 PCT and therefore make it difficult to determine the matter for which protection is sought, placing an undue burden on others seeking to establish the extent of the protection.

2. The embodiments of the invention described on page 10, lines 15-24, do not fall within the scope of the independent claims (which only refer to the detection of radiation emitted by the samples). This inconsistency between the claims and the description leads to doubt concerning the matter for which protection is sought, thereby rendering the claims unclear (Article 6 PCT).

3. Claim 2 is rendered unclear (Article 6 PCT) by the reference to "said plurality of emitted wavelengths", since there is no previous mention of such plurality of emitted

wavelengths in claim 1 on which said claim 2 is dependent. As a matter of fact, the plurality of emitted wavelengths mentioned in claim 2 is in contradiction with the possible alternative of only one emitted wavelength implied by the wording of claim 1: "emitted radiation of at least a second wavelength".

Claim 21 is similarly rendered unclear by the reference to "the first and second emitted wavelengths", since there is no previous mention of such first and second emitted wavelengths in claim 18 or in any of the claims 1-17 on which said claim 21 is dependent.

4. The respective wording of claims 11-13 is unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT). As a matter of fact, an optical element for transforming a multiple beam pattern into a parallel beam pattern is not generally known as a diffractive element which diffracts a beam (see also page 11, lines 16-27 of the description).

US

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
RSN/P10518PC		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/GB 00/ 01050	27/03/2000	26/03/1999
Applicant		
THE UNIVERSITY COURT OF THE UNIVERSITY OF GLASGOW		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [X] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 2

   [X] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

   [ ] None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 00/01050

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-27, 31-38

   Methods and apparatus involving the splitting of excitation light by means of a diffraction device.

2. Claims: 28-30

   Multi-sample holder in which optical focussing means are associated with each sample area.

INTERNATIONAL SEARCH REPORT

International Application No
PC[redacted] 00/01050

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N21/64

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ, WPI Data, INSPEC, COMPENDEX, IBM-TDB, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 60 035205 A (MACHIDA) 23 February 1985 (1985-02-23) abstract; figures	1,17
Y	M: BURKHARDT ET AL.: "Illuminator design for printing of regular contact patterns" MICROELECTRONIC ENGINEERING., vol. 41-42, 1998, pages 91-95, XP004111724 ELSEVIER PUBLISHERS BV., AMSTERDAM., NL ISSN: 0167-9317 page 91, right-hand column, paragraph 2 figure 1	36-38

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 November 2000	06. 12. 2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Thomas, R.M.

6

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 97 39151 A (AFFYMETRIX) 23 October 1997 (1997-10-23) abstract page 1, paragraph 2 -page 2, line 7 page 16, line 23 -page 17, line 7 page 54, line 31 - line 33	36-38
A	US 5 053 619 A (ARIMOTO) 1 October 1991 (1991-10-01) column 2, line 1 - line 31 figure 3A	7-9
A	WO 97 34171 A (JOHNSON) 18 September 1997 (1997-09-18) page 5, line 21 -page 6, line 23 figures 1,2	1,22,36
A	GB 2 315 131 A (CAMBRIDGE IMAGING) 12 January 1998 (1998-01-12) abstract page 12, line 18 - line 25 page 13, paragraph 2 page 21, line 32 - line 35 figure 1	1,2,4, 17,20, 22-25,31
A	J.M. STONE: "Radiation and Optics" 1963 , MCGRAW-HILL BOOK COMPANY INC. , NEW YORK XP002144814 Library of Congress Catalog Card No. 62-21791. Section 7-10; figures 7-12, 7-13(a)	1
P,X	DE 197 48 211 A (CARL ZEISS) 6 May 1999 (1999-05-06) abstract column 1, last line -column 2, line 10 column 2, line 35 - line 59 column 3, line 2 - line 7 figure 1	1,2,4, 10-12, 14,17, 19,22, 23,27
E	WO 00 31518 A (CAMBRIDGE RESEARCH AND INSTRUMENTATION) 2 June 2000 (2000-06-02) page 6, line 7 - line 12 page 7, line 5 - line 8 page 7, line 16 - line 18 page 20, line 24 -page 21, line 5 figure 3	1,2,4,5, 17,18, 22,23

-/--

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INTERNATIONAL SEARCH REPORT

International Application No
PC[redacted] 00/01050

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	DE 197 25 050 A (FRAUNHOFER-GESELLSCHAFT) 17 December 1998 (1998-12-17) column 1, line 3 - line 6 column 4, line 34 - line 41 column 4, line 51 -column 5, line 10 figures 1,2	28-30
X	DE 298 10 554 U (KRAUSER) 29 October 1998 (1998-10-29) page 5, line 12 - last line figures 1-3A	28,29
P,X	EP 0 947 249 A (CORNING) 6 October 1999 (1999-10-06) column 1, line 5 - line 7 column 2, line 33 - line 38 column 3, line 35 -column 4, line 9 figures	28,29
Y	EP 0 217 632 A (MOLECULAR DEVICES) 8 April 1987 (1987-04-08) column 1, paragraph 1 column 6, line 54 -column 7, line 17 figure 1	28,29
Y	EP 0 723 146 A (SRI) 24 July 1996 (1996-07-24) abstract page 23, paragraph 2 figure 7B	28,29
A	DE 40 30 699 C (BRUKER ANALYTISCHE MESSTECHNIK) 10 October 1991 (1991-10-10) column 5, line 65 -column 6, line 14 figure 1	28

6

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/[redacted] 00/01050

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 60035205 A	23-02-1985	NONE	
WO 9739151 A	23-10-1997	US 5959098 A	28-09-1999
		AU 2804797 A	07-11-1997
		CA 2251755 A	23-10-1997
		EP 0950112 A	20-10-1999
		JP 2000508542 T	11-07-2000
US 5053619 A	01-10-1991	US 5196697 A	23-03-1993
		US 5233188 A	03-08-1993
		US 5289001 A	22-02-1994
		JP 3039923 A	20-02-1991
		DE 3926636 A	15-02-1990
		JP 2160212 A	20-06-1990
		JP 2926143 B	28-07-1999
		KR 9109142 B	31-10-1991
		US 5006705 A	09-04-1991
WO 9734171 A	18-09-1997	AU 1975197 A	01-10-1997
		EP 0991959 A	12-04-2000
		US 6133986 A	17-10-2000
GB 2315131 A	21-01-1998	EP 0910790 A	28-04-1999
		EP 0910791 A	28-04-1999
		WO 9801743 A	15-01-1998
		WO 9801744 A	15-01-1998
		GB 2315130 A	21-01-1998
DE 19748211 A	06-05-1999	AU 9749898 A	24-05-1999
		WO 9923474 A	14-05-1999
		EP 1027591 A	16-08-2000
WO 0031518 A	02-06-2000	NONE	
DE 19725050 A	17-12-1998	WO 9857151 A	17-12-1998
		EP 0988526 A	29-03-2000
DE 29810554 U	29-10-1998	EP 0963790 A	15-12-1999
EP 0947249 A	06-10-1999	WO 9947352 A	23-09-1999
EP 0217632 A	08-04-1987	AT 138475 T	15-06-1996
		CA 1305334 A	21-07-1992
		DE 3650524 D	27-06-1996
		DE 3650524 T	21-11-1996
		JP 62115348 A	27-05-1987
		JP 7167777 A	04-07-1995
		US 4968148 A	06-11-1990
EP 0723146 A	24-07-1996	AT 170004 T	15-09-1998
		CA 2144527 A	31-03-1994
		DE 69320484 D	24-09-1998
		DE 69320484 T	24-12-1998
		DK 660936 T	25-05-1999
		EP 0660936 A	05-07-1995
		ES 2123063 T	01-01-1999
		JP 8501632 T	20-02-1996
		WO 9407142 A	31-03-1994

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern[illegible]al Application No
PC[illegible] 00/01050

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0723146 A		US 5674698 A	07-10-1997
		US 5736410 A	07-04-1998
		US 5891656 A	06-04-1999
DE 4030699 C	10-10-1991	GB 2248944 A,B	22-04-1992
		US 5171995 A	15-12-1992